

LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Presently Amended) A charged particle beam system including a main chamber, an exchange chamber and a substrate handling device mounted inside the main chamber for loading and unloading a substrate into and out of the main chamber, the device comprising a bar having a longitudinal axis and a side member extending laterally from the bar for supporting the substrate to one side of the bar, the bar mounted for movement along the longitudinal axis between at least a first position, in which the side member is located within the exchange chamber and a second position, in which the side member is located outside the exchange chamber. ~~and means for translating the bar along its longitudinal axis and configured such that the side member is moveable into and out of the exchange chamber.~~
2. (Presently Amended) A system according to claim 1, wherein the device further comprises ~~wherein the means for translating the bar,~~ the translating means ~~including~~ a rail protruding from the bar.
3. (Original) A system according to claim 2, wherein the rail runs along the bar.
4. (Presently Amended) A system according to claim ~~2 or 3~~ 3, wherein the means for translating the bar further includes a set of linear bearings for holding the rail.

5. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the bar is cogged to provide a rack.
6. (Presently Amended) A system according to claim 5, wherein the device further comprises means for translating the bar, wherein the means for translating the bar further includes a pinion arranged to engage the rack.
7. (Presently Amended) A system according to claim 6, wherein the pinion is directly coupled to a motor.
8. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the device further comprises means for supporting the bar.
9. (Presently Amended) A system according to claim 8, wherein the device further comprises means for translating the bar, the means for translating the bar ~~including~~includes a rail protruding from the bar and wherein the means for supporting the bar includes a set of linear bearings for holding the rail.
10. (Presently Amended) A system according to claim ~~8 or 9~~, wherein the bar is cogged to provide a rack and the means for supporting the bar includes a pinion arranged to engage the rack.

11. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the bar has a transverse axis, the device further comprising means for translating the bar along a ~~the~~ transverse axis.

12. (Presently Amended) A system according to claim 11, wherein ~~said~~the means for translating the bar along ~~a~~the transverse axis comprises means for raising and lowering ~~said~~said ~~the~~ bar.

13. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the side member is in the form of a cantilevered wing.

14. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the main chamber has an inside wall and the device is mounted to an ~~the~~ inside wall, ~~of a~~ ~~chamber.~~

15. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the main chamber has a wall having an aperture and the device is configured to project the bar and the side member project through ~~the~~an aperture in ~~the~~a wall of the main chamber.

16. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the bar is substantially horizontal.

17. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further ~~comprising configured to cooperate with~~ a cassette having a plurality of shelves.

18. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further ~~comprising configured to cooperate with~~ a cassette having at least one shelf, ~~the~~said shelf having a ledge around a space, ~~said device configured to permit said~~the side member to ~~pass~~movable through ~~the~~said space when ~~the~~said side member is raised or lowered so as to permit ~~the~~a substrate to be deposited on or picked up from ~~the~~the ~~said~~ shelf.

19. (Presently Amended) A system according to ~~any preceding claim~~claim 1, ~~wherein the device further comprises wherein said substrate is supported by a substrate support, the and said side member is configured to supporting the said substrate support.~~

20. (Presently Amended) A system according to ~~any one of claims 1 to 19~~claim 1, wherein ~~the~~said substrate is a workpiece.

21. (Presently Amended) A system according to ~~any one of claims 1 to 20~~claim 1, wherein ~~said~~the substrate is a wafer.

22. (Presently Amended) A system according to ~~any one of claims 1 to 20~~claim 1, wherein ~~said~~the substrate is a wafer chip.

23. (Presently Amended) A system according to claim 21 ~~or 22~~, wherein ~~said~~the substrate includes at least one layer overlying a base.

24. (Presently Amended) A system according to claim 23, wherein ~~said~~the substrate that includes at least two layers, a first layer overlying a base and a second layer overlying the first layer.

25. (Presently Amended) A system according to claim 23 ~~or 24~~, wherein ~~said~~the one layer is an epitaxial layer.

26. (Presently Amended) A system according to claim 21 ~~or 22~~, wherein ~~said~~the substrate is patterned.

27. (Presently Amended) A system according to ~~any one of claims 1 to 20~~claim 1, wherein ~~said~~the substrate is a mask blank.

28. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein a surface of ~~said~~the substrate is coated with a resist layer.

29. (Presently Amended) A system according to ~~any one of claims 1 to 20~~claim 1, wherein ~~said~~the substrate is a specimen.

30. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further comprising a cassette for holding a plurality of wafers, the side member engageable with at least one of the plurality of wafers.

31. (Presently Amended) A system according to claim 30, wherein ~~said~~the cassette comprises a plurality of shelves.

32. (Presently Amended) A system according to claim 31, wherein each shelf includes ~~is configured to provide~~ a ledge defining a plane and around a space through which the side member can pass when being raised or lowered through the plane of the shelf.

33. (Presently Amended) A system according to claim 31 ~~or 32~~, wherein a portion of an inner periphery of each shelf has a complementary shape to a portion of an outer periphery of ~~said~~the side member.

34. (Presently Amended) A system according to ~~any preceding claim~~claim 30, further comprising wafer supports, wherein the wafers are supported by respective wafer supports.

35. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein in a third~~first~~ position, the device is contained within the main chamber.

36. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further comprising means for evacuating ~~said~~the main chamber.

37. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further comprising means for controlling an environment within ~~said~~the main chamber.

38. (Original) A substrate handling device for a charged particle beam system, the device comprising a bar and a side member extending laterally from the bar for supporting a substrate to one side of the bar and means for slidably moving the bar along its longitudinal axis.

39. (Original) A substrate handling device for a charged particle beam system, the device comprising a bar and a side member extending laterally from the bar for supporting a substrate to one side of the bar, the bar being configured to translate along its longitudinal axis.

40. (Presently Amended) A method of handling a substrate in a charged particle beam system using a device comprising a bar having a longitudinal axis and a side member extending laterally from the bar for supporting a ~~the~~ substrate to one side of the bar ~~and means for translating the bar along its longitudinal axis~~, the method comprising:

translating the bar along ~~the~~its longitudinal axis.

41. (Presently Amended) A method according to claim 40, further comprising:
raising ~~said~~the bar so as to cause a substrate to be picked up.

42. (Presently Amended) A method according to claim 40 ~~or 41~~, further comprising:
lowering saidthe bar so as to cause thea substrate to be placed down.

43. (Presently Amended) A substrate handling device for a charged particle beam
system, for use with a substrate, the device comprising:

a bar having a longitudinal axis and a side member extending laterally from the bar
for supporting thea substrate to one side of the bar; and
means for translating the bar along theits longitudinal axis.